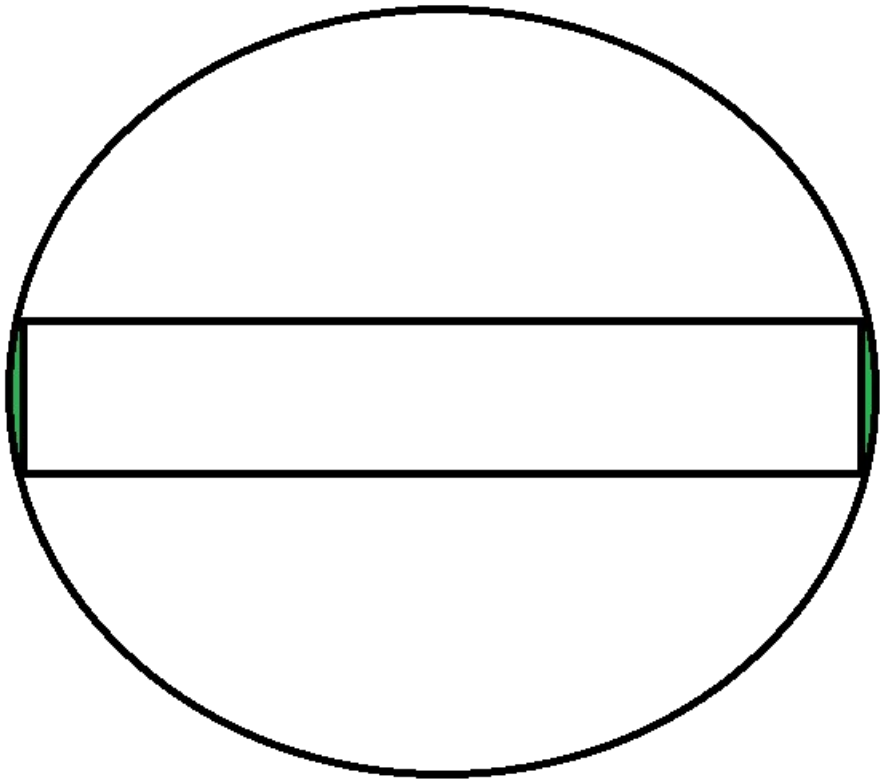
Straight Line Circle Theory

By: Michael G. Strain Jr.



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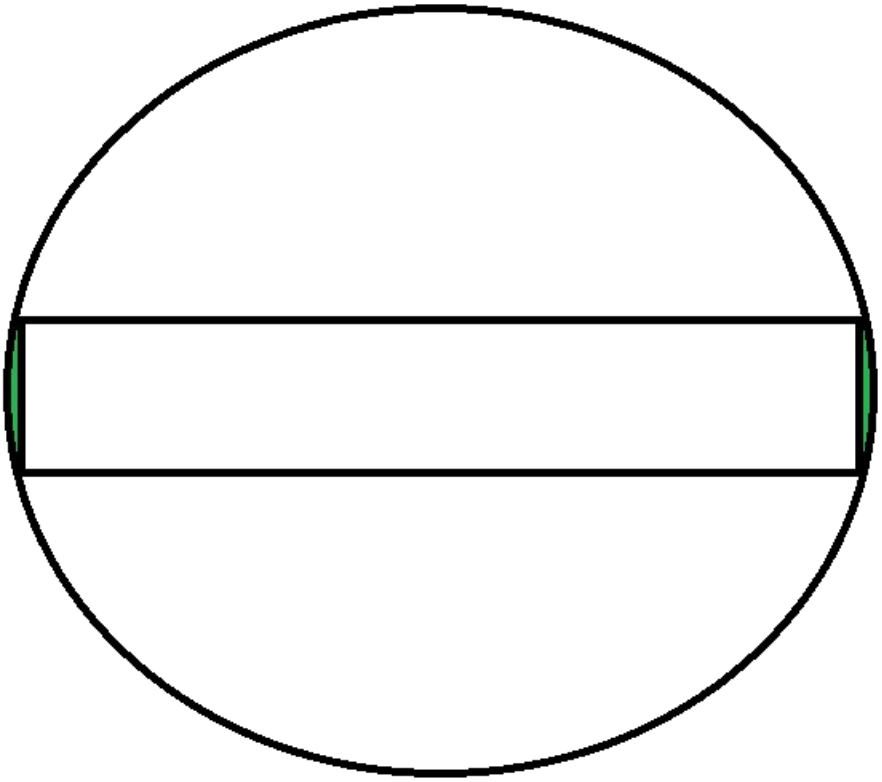
Pi is commonly known as 3.14 and so on or 22/7 by William Jones (source 6). In this paper it is explained how a new method of calculating Pi that is more accurate or exact than that of William Jones and Archimedes (source 3). This paper will provide theories and explanations as to why Pi is smaller than 3.14 or 22/7 as well as how to accurately solve for Pi using a commonly agreed upon mathematics. I will first explain the reasons why Pi, as it is commonly known in the year 2024, is inaccurate according to the Straight Line Circle and Rope Circumference Theories. I will then explain the Exact Pi Theory and its method.

Straight Line Circle Theory

Straight Line Circle Theory states that the reason a line ought not be used inside the circle for diameter is because a line is straight meaning it has square edges and the arc of a circle is round. Thus, when the diameter of a circle is measured as a line in the center of the circle, the line does not sit flush against the arc of a circle. Because the line does not sit flush against the arc of the circle the diameter cannot be accurately measured. When a line touches the arc of a circle it touches in two places and those are the edges. The center of the width of the line never touches the arc of the circle.

A skinnier and skinnier line would make for a more accurate diameter but could never be completely accurate in theory. As you can see in the picture the magnified line does not sit flush with the arc of the circle. The green area is the place where the error is when measuring diameter with a line.



The line in the center of a circle does not accurately measure diameter thus we must square the sphere, to find diameter. A sphere or marble will sit flush on a flat surface thus squaring the sphere is a plausible method of finding diameter (this method is later explained below in Exact Pi Theory).

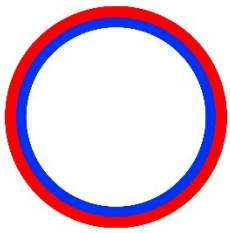
A smaller number then 3.14 as Pi is expected because diameter would be relatively significantly longer than originally thought when using the line inside of a circle method for measuring pi. A longer diameter would go

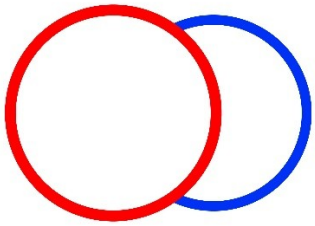
around the circle less times because each diameter would be longer thus covering more space each time around. Less diameters would be needed to go around the circle.

Rope Circumference Theory

Rope Circumference Theory states that measuring circumference with a rope or tape on the outside of the circle is not an accurate method of measuring circumference because the rope/tape makes a bigger circle than the one being measured. A smaller circle has a smaller circumference than a bigger circle. Thus, the thickness of the rope/tape itself does inherently increase the measurement of circumference. Thus, a rope or tape does not accurately measure circumference.

A skinnier and skinnier rope would measure circumference more accurately than a thicker rope but in theory ultimately will not provide an accurate measure of circumference. As you can see from the images below, the red circle measuring circumference is inherently larger than blue line it is measuring.





If the circumference is smaller than previously thought, then Pi will be smaller than previously thought because there will be less distance for

diameter to go around. Thus, new measurement of Pi may provide a new measurement of circumference as explained below in Exact Pi Theory.

Exact Pi Theory

The Exact Pi Theory states that Pi can be calculated by using the volume of a sphere equation V=(4/3) Pi r^3 (source 1), by taking the physical measurements of volume and diameter by squaring the sphere. Then one can solve for Pi. Volume of a sphere can be measured by placing the sphere into a container of water or liquid and measuring the displacement, thus getting the volume of a sphere. Diameter can be measured by placing the sphere into a fitted square box or wrench with a measuring gauge (or caliper (source 7) even) thus measuring diameter. Pi would be the last variable left thus giving us an accurate value of Pi. This would be solved through algebra (source 2). Thus, using the equation Circumference= 2 Pi x radius the circumference can be found.

Conclusion

In theory, the previous method of using a line inside of a circle to measure radius and diameter is not accurate thus squaring the circle is better. Accurately measuring circumference with a line/rope is not possible as the previous widely well known method. Because in theory the previous methods of solving for Pi are determined to be inaccurate methods, the proven method of solving for Pi such as the one in the Exact Pi Theory should be used. Then, after Pi is found a new measurement of circumference can be found. Pi will be smaller than 22/7 or the approximation of 3.14 because with an inherently smaller circumference measurement and an inherently longer diameter, the diameter will go around the circumference less times. Pi will be

less than the current number of the approximation of 3.14 and closer to the Biblical ratio of Pi which is calculated as 3 (Sources 4 and 5). Also, the implications of my three theories may have many more implications in other mathematical situations.

The Exact Pi Theory could save mankind a lot of lives and trouble. There might be fewer problems in power plants, engines might be able to spin faster and all motors spinning parts would turn with more precision. What if degrees on a compass were more accurate? Ships might navigate with more precision. If we taught people in schools and current professionals these theories, then people will be able to make use of the knowledge. Thus, the Earth would be a better place.

Sources

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5. 1 Kings 7:23 NIV - He made the Sea of cast metal, circular - Bible Gateway
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7. Michael G. Strain Sr.